

***NATIONAL WEATHER SERVICE WESTERN REGION SUPPLEMENT 9-2003
APPLICABLE TO NWSI 10-805 and 10-813
JULY 7, 2006***

***Operations and Services
Aviation Weather Services, NWSPD 10-8
Aviation Weather Services, NWSI 10-805 and 10-813
WESTERN REGION AVIATION SERVICES***

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SUMMARY OF REVISIONS: This directive supersedes Regional Supplement 9-2003, dated September 24, 2004, filed with Instructions 10-801, 10-805, and 10-813. It no longer pertains to NWSI 10-801, and NWSI 10-808 was rescinded on November 23, 2004.

The following changes were made in this issuance:

1. Section 2b. Addition of TAFs. Requests for new TAF service was changed from must to “should come from a regional FAA office to MSD”.
2. Section 2d. Verification, 4th sentence: Verifying individual aviation statistics is voluntary so this sentence was removed.
3. Section 3a. TWEB Use: Clarification was added to the paragraph regarding use of TWEBs for airports which do not have TAF service.
4. Section 4. A new section was added for Aviation Section in the Area Forecast Discussion.
5. Section 4. Training and Professional Development: was moved to Section 5.
6. Section 4b. Aviation Baseline Knowledge: Professional Development Series (PDS) was removed, and the paragraph was re-written to mention the aviation web based training.
7. Section 4 note. The date for “grandfathered” training was updated.
8. Section 4.1. Aviation Proficiency: was moved to Section 5.1.
9. Section 5. Designated Pilot (DP) Program: was removed since the portion has been discontinued by NOAA.
10. Section 5.1d. Briefing Training (CWSU only): This proficiency requirement was removed.
11. Appendix A - WFO Aviation Forecaster Task List was updated with the latest aviation training.
12. Appendix B - CWSU Aviation Forecaster Task List was updated with the latest aviation training.

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| Signed | 06/21/06 |
| Vickie Nadolski | Date |
| Director, Western Region | |

Table of Contents:Page

| | |
|---|---|
| 1. Description | 2 |
| 2. Terminal Aerodrome Forecasts (TAF) | 2 |
| 3. Transcribed Weather Broadcast (TWEB) Services | 4 |
| 4. Aviation Section in the Area Forecast Discussion | 5 |
| 5. Training and Professional Development | 5 |
| 5.1 Aviation Proficiency | 6 |

Appendix

| | |
|---|-----|
| A. WFO Aviation Forecaster Task List | A-1 |
| B. CWSU Aviation Forecaster Task List | B-1 |

1. Description: The aviation program at WR WFOs is a vital part of NWS forecast operations. All WFO forecasters must be fully qualified to produce aviation products, regardless of grade. Workload often requires aviation forecasts be issued by any forecaster on shift, not just a designated “aviation forecaster”. Meteorologist Interns may write TAFs after receiving the proper local aviation training, provided the TAFs are reviewed by a forecaster before issuance. Hydrometeorological Technicians (HMTs) will not be responsible for producing TAFs, but may produce TWEBS, as described later in this Supplement.

2. Terminal Aerodrome Forecasts (TAF). TAFs are prepared by WR WFOs for airports as listed in NWSI 10-813, Appendix E.

- a. Changes to TAF Hours: Requests to change the hours of TAF coverage should come from a local or regional FAA office. A MIC may also request expanded TAF hours for sites where observations have changed from part-time to full-time, and they believe the increase will benefit aviation customers. The MIC will forward such requests to MSD, who will discuss the expansion with the WFO in terms of workload and observation reliability. If the request is approved by MSD, MSD will forward the request to Office of Climate Weather and Water Services (OCWWS) NWSH for consideration. Once the change is approved at all levels, MSD will draft a change notice and send it to NWSH for dissemination.
- b. Addition of TAFs: Requests for new TAF service must come from a local or regional FAA office to MSD. Customers who contact a WFO to request a new TAF should be referred to the FAA. MSD will discuss a formal request with the responsible WFO, and upon agreement that the TAF is justified and observation requirements are satisfied (NWSI 10-813), MSD will forward the request to OCWWS for approval. MSD will draft a change notice and send it to NWSH for dissemination.

- c. Deletion of TAFs: Requests to terminate an existing TAF may be made by the MIC. Justification for the deletion of a TAF will be sent to the Director of OCWWS, NWSH through MSD. The letter should state, “due to unavailability of observations, ABC WFO would like to drop XYZ TAF”. Once the letter is sent to OCWWS, Aviation Services Branch (ASB) for action, they will forward it to the FAA. WFOs should not discontinue a TAF until the FAA has notified OCWWS of approval, and the customer notification process is complete.
- d. Verification: The national aviation verification statistics can be found under the “Stats on Demand” web site. Other supplemental verification programs may be used by the WFO, but statistics from “Stats on Demand” will be used for any regional or national purposes. Verification results must be evaluated by the WFO management team/focal point on a routine basis to determine strengths and weaknesses of the WFOs TAF program. WFOs are requested to produce summaries for the staff and WR MSD on a quarterly basis. These reports will be submitted January 30, April 30, July 30, and October 30.
- e. Content: In addition to the guidelines presented in NWSI 10-813, WR forecasters should take the following information into account when preparing TAFs:
 - 1. Write the forecast based on the conditions a pilot can expect when landing or departing from the airport, keeping in mind that an automated observation system may only “see” over a point, while the TAF is to cover a five-mile radius from the center of airport.
 - 2. Although the critical TAF period for most airports is within 2-6 hours of the TAF valid time, international airports with flights crossing the Atlantic and/or Pacific rely on the second half of the 24 hour TAF to plan their flight operations. Airlines and airports with flights originating in Australia, Europe, Asia, etc use information 12 - 24 hours from the current valid time because that is when their flights will be arriving at Western Region International Airports.
 - 3. Use of TEMPO group: WR forecasters should use TEMPO sparingly in the first 12 hours of a TAF, and should eliminate them if possible after 12 hours. TEMPO is defined to indicate fluctuating conditions that have a high probability of occurring, and should not be used as a “just in case” group.
 - 4. Due to the different natures of the TAF and public zone forecasts, there is no requirement for an exact match between the two in terms of precipitation and obstructions to vision. Scattered precipitation in the public forecast zone containing the airport, may be less likely to occur at the airport itself, and the TAF should reflect that difference.

3. Transcribed Weather Broadcast (TWEB) Services: TWEBs are prepared by WR WFOs for routes as listed in NWSI 10-805, Appendix A. Forecasters and interns may prepare TWEB forecasts. HMTs that have completed the aviation training requirements (section 5) may prepare TWEBs, but they must be reviewed by a forecaster before disseminating.

- a. TWEB Use: The main customer of the TWEB is the Automated Flight Service Station (AFSS). The AFSS pilot weather briefers use the TWEB to provide information directly to pilots during a briefing, to familiarize themselves on the weather conditions in an area, and/or to compose recordings that may be accessed by pilots. They are especially valuable in areas of variable terrain. TWEBs are used primarily by aircraft flying below 15,000 feet. Not only are TWEBs used as en-route forecasts, they also function as TAFs, providing arrival and departure forecasts for airports that do not have TAF service.
- b. Philosophy: The TWEB is a forecast of expected conditions along a route between two or more points, or in the vicinity of a large airport. While the TWEB must be in general agreement with any TAFs along the route, it should go further and encompass the prevailing and significant weather along the entire route. The TWEB can provide greater detail over a smaller area (the route) than the Area Forecast prepared by the Aviation Weather Center. However, the forecaster must make sure the details do not make the TWEB so long that the customer can't use it. Generally, four lines should be the limit, with some cases requiring up to six lines. TWEBs must be amended when conditions do not agree with those previously forecast; failing to amend obviously incorrect TWEBs diminishes the credibility of the product and the NWS in general.
- c. Content: Focus on visibility, weather and clouds below fifteen thousand feet, especially hazardous flying conditions.
 1. Mountain obscuration is of particular importance and should be included early in the product (e.g. MTS OBSC BKN070 LCL 3SM -SHSN...). Include the height of the obscuration if caused by clouds rather than precipitation (e.g. MTS OBSC ABV 030).
 2. Avoid crossing flight categories of ceiling and visibility if at all possible. (e.g. BKN025-035 includes both MVFR (<3000 feet) and VFR (3000+ feet) conditions. SCT-BKN015 is VFR for SCT clouds and MVFR for BKN clouds. If these are the actual weather conditions, keep the duration of those conditions as short as possible in the TWEB.
 3. Include cloud tops or merging layers as appropriate.
 4. Use the term "CIGS" to denote BKN-OVC layers at or below 4000 feet above the ground when appropriate. The use of "CIGS" changes the official reference plane from MSL to AGL, and eliminates confusion as to how high the clouds are expected to be above the terrain. In mountainous

areas, “CIGS” should refer to the approximate mean elevation of the area and may still result in obscured terrain.

- d. Verification: Due to inherent difficulties in observing aviation weather conditions over an area, no formal verification program exists for the TWEB product. Forecasters must monitor and amend TWEBs as needed to make sure they are consistent with current and forecast conditions along the route.
4. Aviation Section in the Area Forecast Discussion (AFD): An aviation section is mandatory in the AFD. This section of the AFD should be written to the NWS aviation customers. These customers include (and are not limited to) Automated Flight Service Stations (AFSS), the Aviation Weather Center, CWSUs, pilots, and airline dispatchers. For specific instructions regarding the aviation section of the AFD, refer to WR Supplement 23-2003: Western Region Public Weather Products.
5. Training and Professional Development: WR meteorologist producing any of the core suite of aviation products or services must be trained. Forecasters (and Hydro-Meteorological Technicians if producing TWEBs) will complete the following requirements before issuing aviation products*:
- a. Local Training. Complete local training led by the Science Operation Officer (SOO) and aviation focal point. For CWSUs the training will be led by the Meteorologists in Charge (MIC). Use of the Weather Event Simulator (WES) is encouraged, and the training should focus on (1) the effects of local complex terrain on aviation parameters with an emphasis on cloud cover and visibility; (2) local aviation studies and climatology; and (3) Automated Surface Observing Systems (ASOS) and WSR-88D observations.
 - b. Aviation Baseline Knowledge. Complete the NWS web based aviation training (Distance Learning Aviation Course (DLAC), Aviation Operations Course, etc). See task lists - Appendix A and B for specific lessons.
 - c. Products and Services. Become familiar with all NWS aviation products and services and become proficient in the preparation and dissemination procedures for those products issued by your office. Read NWS Policy Directive 10-8, associated instructions and WR supplements.
 - d. Briefing Training (CWSU only). Training on the fundamentals of providing quality stand up weather briefings will be provided by the CWSU MIC or designee.
 - e. New WFO forecasters complete WFO Aviation forecaster task list (Appendix A).
 - f. New CWSU forecasters complete CWSU Aviation forecaster task list (Appendix B).

* Note: the requirements assume the forecaster has completed the NWS meteorologist intern training (NWSI 20-103). If the forecaster is new to the agency, without a NWS intern assignment, the intern requirement will be completed before the aviation forecaster training. NWS forecasters (general or lead as of 8/1/04) and HMTs (trained to issue TWEBS as of 8/1/04) are grand fathered into the training (Section 5).

5.1 Aviation Proficiency: It is important for NWS forecasters to remain current and proficient with the latest advances in the science. Experienced forecasters must complete the following requirements to remain proficient in aviation:

- a. Operations. WFO forecasters will work a minimum of two weeks of aviation shifts (minimum 10 shifts) annually. Shifts are defined as issuing the routine aviation products and providing a continuous weather watch. CWSU forecasters will work a minimum of four weeks of operational shifts (minimum 20 shifts) annually. In addition, it is highly recommended for CWSU forecasters to shadow the WFO forecaster for a minimum of one day annually.
- b. Meteorology. Read or submit a weather study annually. Attending a local forecasting seminar, AMS meeting, weather workshop, COMET training or NWSTC Course will meet this requirement.
- c. Outreach. Perform outreach with an aviation customer every five years.

The MIC will be responsible for ensuring aviation forecasters are proficient. MICs or SOOs will oversee proficiency records in the meteorologists individual training plans, and determine refresher training if necessary.

APPENDIX A - WFO Aviation Forecaster Task List

The MIC will be responsible for ensuring aviation forecasters are properly trained. The MIC or SOO will initial the appropriate task when complete. After all the tasks have been completed, a copy of the task list will be kept in the individual meteorologists training plan.

- ☐ Complete local training. Use of the WES is encouraged. Focus on (1) the effects of local complex terrain on aviation parameters with an emphasis on cloud cover and visibility; (2) local aviation studies and climatology; and (3) Automated Surface Observing Systems (ASOS) and WSR-88D observations.

Date of completion: _____

- ☐ Distance Learning Aviation Course - DLAC (DLACII: Writing Effective Terminal Forecasts is currently in development)

Date of completion: _____

- ☐ NWSTC web based Aviation Operations Course

Date of completion: _____

- ☐ COMET Module – The Impact of Weather on Air Traffic

Date of completion: _____

- ☐ Aviation Forecast Preparation System (AVNFPS) Training

Date of completion: _____

- ☐ Read National Directives System (10-8) Aviation Weather Services, Instructions 10-801, 10-802, 10-804, 10-805, 10-811 through 10-813.

Date of completion: _____

APPENDIX B - CWSU Aviation Forecaster Task List

The MIC will be responsible for ensuring CWSU forecasters are properly trained. The MIC will initial the appropriate task when complete. After all the tasks have been completed, a copy of the task list will be kept in the individual meteorologists training plan.

- ☐ Complete local weather training. Training should focus on (1) the large areas which encompass the CWSUs area of responsibility, and the effects of complex terrain on aviation parameters which affect aviation traffic flow; (2) local aviation studies and climatology; (3) and major jet routes used by the Center.

Date of completion: _____

- ☐ ARTCC training. This includes (but not limited to) FAA orientation and clearance, local equipment training, knowledge of Aviation Weather Center products and local CWSU products.

Date of completion: _____

- ☐ Distance Learning Aviation Course - DLAC (COMET)

Date of completion: _____

- ☐ NWSTC web based Aviation Operations Course

Date of completion: _____

- ☐ COMET Module – The Impact of Weather on Air Traffic

Date of completion: _____

- ☐ The Impact of Weather on Air Traffic: Weather Impact Playbook

Date of completion: _____

- ☐ Read National Directives System (10-8) Aviation Weather Services, Instructions 10-802 through 10-804, 10-806, 10-809 through 10-813.

Date of completion: _____

- ☐ Training on the fundamentals of providing quality stand up weather briefings.

Date of completion: _____